

INTERNATIONAL SEARCH REPORT

International Application No
PCT/FR2005/000093

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/53 C12N15/80 C12N9/02 C12N1/15 C12P21/02
//(C12P21/02,C12R1:645)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C12P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, MEDLINE, FSTA, EMBL, CHEM ABS Data, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>ALVES ALEXANDRA M C R ET AL: "Highly efficient production of laccase by the basidiomycete Pycnoporus cinnabarinus" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 70, no. 11, November 2004 (2004-11), pages 6379-6384, XP002341841 ISSN: 0099-2240 the whole document -& DATABASE EMBL 'Online! 1 February 2005 (2005-02-01), "Pycnoporus cinnabarinus laccase gene, promoter region, 5' UTR and partial cds." XP002341845 retrieved from EBI accession no. EM_FUN:AY534884 Database accession no. AY534884 the whole document</p> <p style="text-align: center;">----- -/--</p>	1-20

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

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- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *& document member of the same patent family

Date of the actual completion of the international search

23 August 2005

Date of mailing of the international search report

08/09/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MARTINEZ A T: "Fungal metalloenzymes oxidizing aromatic compounds of industrial interest" 'Online! 25 November 2003 (2003-11-25), XP002295843 Retrieved from the Internet: URL: http://www.cib.csic.es/lignina/pelas/pelas.html > 'retrieved on 2004-09-10! paragraph '0005!	1-20
X	LOMASCOLO A ET AL: "Overproduction of laccase by a monokaryotic strain of Pycnoporus cinnabarinus using ethanol as inducer." JOURNAL OF APPLIED MICROBIOLOGY, vol. 94, no. 4, 2003, pages 618-624, XP002295716 ISSN: 1364-5072 the whole document	1-5,7-9, 14-20
X	SIGOILLOT JEAN-CLAUDE ET AL: "Laccase production by a monokaryotic strain of Pycnoporus cinnabarinus derived from a dikaryotic strain" WORLD JOURNAL OF MICROBIOLOGY AND BIOTECHNOLOGY, vol. 15, no. 4, August 1999 (1999-08), pages 481-484, XP008035159 ISSN: 0959-3993 cited in the application the whole document	1-5,7-9, 14-20
X	OTTERBEIN LUDOVIC ET AL: "Molecular cloning of the cDNA encoding laccase from Pycnoporus cinnabarinus I-937 and expression in Pichia pastoris" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 267, no. 6, March 2000 (2000-03), pages 1619-1625, XP002295717 ISSN: 0014-2956 the whole document	14-20
A	-& DATABASE EMBL 'Online! 24 November 1999 (1999-11-24), OTTERBEIN L ET AL: "Pycnoporus cinnabarinus laccase (LacI) gene, complete cds." XP002295722 Database accession no. AF170093 the whole document	1-13

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X	RECORD ERIC ET AL: "Expression of the Pycnoporus cinnabarinus laccase gene in Aspergillus niger and characterization of the recombinant enzyme" EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 269, no. 2, January 2002 (2002-01), pages 602-609, XP002295718 ISSN: 0014-2956	14-20
A	the whole document	1-13
X	EGGERT CLAUDIA ET AL: "Molecular analysis of a laccase gene from the white rot fungus Pycnoporus cinnabarinus" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 64, no. 5, May 1998 (1998-05), pages 1766-1772, XP002295719 ISSN: 0099-2240	14
A	the whole document	1-13, 15-20
	-& DATABASE EMBL 'Online! 13 May 1998 (1998-05-13), EGGERT C ET AL: "Pycnoporus cinnabarinus laccase (lcc3-1) gene, complete cds." XP002295723 Database accession no. AF025481 the whole document	
A	US 6 551 797 B1 (PFALLER RUPERT ET AL) 22 April 2003 (2003-04-22) the whole document	1-20
X	HERPOEL ISABELLE ET AL: "Selection of Pycnoporus cinnabarinus strains for laccase production" FEMS MICROBIOLOGY LETTERS, vol. 183, no. 2, 15 February 2000 (2000-02-15), pages 301-306, XP002295720 ISSN: 0378-1097 the whole document	1-5,7-9, 14-20
A	SIGOILLOT C ET AL: "Lignocellulolytic and hemicellulolytic system of Pycnoporus cinnabarinus: Isolation and characterization of a cellobiose dehydrogenase and a new xylanase" ENZYME AND MICROBIAL TECHNOLOGY, vol. 31, no. 6, 1 November 2002 (2002-11-01), pages 876-883, XP002295721 ISSN: 0141-0229 the whole document	1-20

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 300 466 A (CANGENE CORP) 25 January 1989 (1989-01-25) page 7, line 56 - page 8, line 8 -----	1-20
A	SCHUREN FRANK H J ET AL: "Highly-efficient transformation of the homobasidiomycete Schizophyllum commune to phleomycin resistance" CURRENT GENETICS, vol. 26, no. 2, 1994, pages 179-183, XP008051258 ISSN: 0172-8083 figure 1 -----	1-20
A	WESSELS J G H ET AL: "EXPRESSION OF DIKARYON-SPECIFIC AND NON-SPECIFIC MESSENGER RNA OF SCHIZOPHYLLUM-COMMUNE IN RELATION TO ENVIRONMENTAL CONDITIONS AND FRUITING" JOURNAL OF GENERAL MICROBIOLOGY, vol. 133, no. 9, 1987, pages 2557-2562, XP008051259 ISSN: 0022-1287 table 1 -----	1-20
A	JP 2001 157586 A (IWATE PREFECTURE) 12 June 2001 (2001-06-12) sequences 1-5 -----	1-20
A	DATABASE EMBL 'Online! 19 September 2000 (2000-09-19); "Pycnoporus cinnabarinus laccase (lac1) mRNA, complete cds." XP002341846 retrieved from EBI accession no. EM_FUN:AF152170 Database accession no. AF152170 the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

International Application No
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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6551797	B1	22-04-2003	DE 19814853 A1	21-10-1999
			AT 220104 T	15-07-2002
			CA 2324443 A1	14-10-1999
			CN 1303440 A ,C	11-07-2001
			DE 59901930 D1	08-08-2002
			DK 1066393 T3	26-08-2002
			WO 9951757 A1	14-10-1999
			EP 1066393 A1	10-01-2001
			JP 3585840 B2	04-11-2004
			JP 2002510498 T	09-04-2002
EP 0300466	A	25-01-1989	CA 1295566 C	11-02-1992
			AT 127840 T	15-09-1995
			DE 3854456 D1	19-10-1995
			DE 3854456 T2	09-05-1996
			EP 0300466 A1	25-01-1989
			ES 2076152 T3	01-11-1995
			US 5514590 A	07-05-1996
			US 5641663 A	24-06-1997
JP 2001157586	A	12-06-2001	NONE	

RAPPORT DE RECHERCHE INTERNATIONALE

Demande nationale No
PCT/FR2005/000093

A. CLASSEMENT DE L'OBJET DE LA DEMANDE CIB 7 C12N15/53 C12N15/80 C12N9/02 C12N1/15 C12P21/02 //(C12P21/02,C12R1:645)		
Selon la classification internationale des brevets (CIB) ou à la fois selon la classification nationale et la CIB		
B. DOMAINES SUR LESQUELS LA RECHERCHE A PORTE Documentation minimale consultée (système de classification suivi des symboles de classement) CIB 7 C12N C12P		
Documentation consultée autre que la documentation minimale dans la mesure où ces documents relèvent des domaines sur lesquels a porté la recherche		
Base de données électronique consultée au cours de la recherche internationale (nom de la base de données, et si réalisable, termes de recherche utilisés) EPO-Internal, WPI Data, PAJ, BIOSIS, MEDLINE, FSTA, EMBL, CHEM ABS Data, Sequence Search		
C. DOCUMENTS CONSIDERES COMME PERTINENTS		
Catégorie *	Identification des documents cités, avec, le cas échéant, l'indication des passages pertinents	no. des revendications visées
P,X	ALVES ALEXANDRA M C R ET AL: "Highly efficient production of laccase by the basidiomycete Pycnoporus cinnabarinus" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 70, no. 11, novembre 2004 (2004-11), pages 6379-6384, XP002341841 ISSN: 0099-2240 le document en entier -& DATABASE EMBL 'Online! 1 février 2005 (2005-02-01), "Pycnoporus cinnabarinus laccase gene, promoter region, 5' UTR and partial cds." XP002341845 extrait de EBI accession no. EM_FUN:AY534884 Database accession no. AY534884 le document en entier ----- -/--	1-20
<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Voir la suite du cadre C pour la fin de la liste des documents </div> <div> <input checked="" type="checkbox"/> Les documents de familles de brevets sont indiqués en annexe </div> </div>		
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<div style="display: flex;"> <div style="flex: 1;"> <p>*A* document définissant l'état général de la technique, non considéré comme particulièrement pertinent</p> <p>*E* document antérieur, mais publié à la date de dépôt international ou après cette date</p> <p>*L* document pouvant jeter un doute sur une revendication de priorité ou cité pour déterminer la date de publication d'une autre citation ou pour une raison spéciale (telle qu'indiquée)</p> <p>*O* document se référant à une divulgation orale, à un usage, à une exposition ou tous autres moyens</p> <p>*P* document publié avant la date de dépôt international, mais postérieurement à la date de priorité revendiquée</p> </div> <div style="flex: 1;"> <p>*T* document ultérieur publié après la date de dépôt international ou la date de priorité et n'appartenant pas à l'état de la technique pertinent, mais cité pour comprendre le principe ou la théorie constituant la base de l'invention</p> <p>*X* document particulièrement pertinent; l'invention revendiquée ne peut être considérée comme nouvelle ou comme impliquant une activité inventive par rapport au document considéré isolément</p> <p>*Y* document particulièrement pertinent; l'invention revendiquée ne peut être considérée comme impliquant une activité inventive lorsque le document est associé à un ou plusieurs autres documents de même nature, cette combinaison étant évidente pour une personne du métier</p> <p>*Z* document qui fait partie de la même famille de brevets</p> </div> </div>		
Date à laquelle la recherche internationale a été effectivement achevée 23 août 2005		Date d'expédition du présent rapport de recherche internationale 08/09/2005
Nom et adresse postale de l'administration chargée de la recherche internationale Office Européen des Brevets, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Fonctionnaire autorisé Devijver, K

RAPPORT DE RECHERCHE INTERNATIONALE

Demande nationale No
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C.(suite) DOCUMENTS CONSIDERES COMME PERTINENTS		
Catégorie	Identification des documents cités, avec, le cas échéant, l'indication des passages pertinents	no. des revendications visées
X	MARTINEZ A T: "Fungal metalloenzymes oxidizing aromatic compounds of industrial interest" 'Online! 25 novembre 2003 (2003-11-25), XP002295843 Extrait de l'Internet: URL:http://www.cib.csic.es/lignina/pelas/pelas.html> 'extrait le 2004-09-10! alinéa '0005!	1-20
X	LOMASCOLO A ET AL: "Overproduction of laccase by a monokaryotic strain of Pycnoporus cinnabarinus using ethanol as inducer." JOURNAL OF APPLIED MICROBIOLOGY, vol. 94, no. 4, 2003, pages 618-624, XP002295716 ISSN: 1364-5072 le document en entier	1-5,7-9, 14-20
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A	-& DATABASE EMBL 'Online! 24 novembre 1999 (1999-11-24), OTTERBEIN L ET AL: "Pycnoporus cinnabarinus laccase (Lac1) gene, complete cds." XP002295722 Database accession no. AF170093 le document en entier	1-13

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A	<p>US 6 551 797 B1 (PFALLER RUPERT ET AL) 22 avril 2003 (2003-04-22) le document en entier</p>	1-20
X	<p>HERPOEL ISABELLE ET AL: "Selection of Pycnoporus cinnabarinus strains for laccase production" FEMS MICROBIOLOGY LETTERS, vol. 183, no. 2, 15 février 2000 (2000-02-15), pages 301-306, XP002295720 ISSN: 0378-1097 le document en entier</p>	1-5,7-9, 14-20
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A	JP 2001 157586 A (IWATE PREFECTURE) 12 juin 2001 (2001-06-12) séquences 1-5 -----	1-20
A	DATABASE EMBL 'Online! 19 septembre 2000 (2000-09-19), "Pycnoporus cinnabarinus laccase (lac1) mRNA, complete cds." XP002341846 extrait de EBI accession no. EM_FUN:AF152170 Database accession no. AF152170 le document en entier -----	1-20

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Document brevet cité au rapport de recherche		Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
US 6551797	B1	22-04-2003	DE 19814853 A1	21-10-1999
			AT 220104 T	15-07-2002
			CA 2324443 A1	14-10-1999
			CN 1303440 A ,C	11-07-2001
			DE 59901930 D1	08-08-2002
			DK 1066393 T3	26-08-2002
			WO 9951757 A1	14-10-1999
			EP 1066393 A1	10-01-2001
			JP 3585840 B2	04-11-2004
			JP 2002510498 T	09-04-2002
EP 0300466	A	25-01-1989	CA 1295566 C	11-02-1992
			AT 127840 T	15-09-1995
			DE 3854456 D1	19-10-1995
			DE 3854456 T2	09-05-1996
			EP 0300466 A1	25-01-1989
			ES 2076152 T3	01-11-1995
			US 5514590 A	07-05-1996
			US 5641663 A	24-06-1997
JP 2001157586	A	12-06-2001	AUCUN	